UNITED STATES PATENT AND TRADEMARK OFFICE

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2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/082,637	STONE ET AL
	Examiner	Art Unit	
	Habte Mered	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 February 2002</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-39</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-39</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>22 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-39 are pending.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   **Claims 8-18, 19-28 and 29-39** are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

Claim 8 refers to the modified hub having three types of interfaces and the

drawing in Figure 5 gives support to the claim. However, amongst the three interfaces

none of them support more than one protocol as indicated in Figure 5 and contradicts

the limitation "...a first interface configured for coupling to and communicating with one

or more of a first type of device operating according to a first protocol and a second

protocol....". It is not clear if the Applicant considers the ability of IEEE 1394 to operate

in asynchronous and isochronous modes as constituting two different protocols. It is

clear to one skilled in the art that asynchronous and isochronous mode of operations

are simply an indication of traffic type supported in a given protocol and Ethernet is

quite capable of supporting both traffic types.

Claims 19 and 29 refers to a hub device providing interface to a first type of

device operating according to a first protocol and second protocol however the

Applicant has only provided support for this limitation with a device operating under

IEEE 1394 protocol and supporting asynchronous and isochronous traffic modes. It is

not clear whether the Applicant is referring to the different traffic modes as different

protocols or not.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   **Claims 1, 4, 5, and 7** are rejected under 35 U.S.C. 102(e) as being anticipated

by Kliger et al (US Pub. No. 2002/0069417), hereinafter referred to as Kliger.

Kliger disclose a home network system.

6.   Regarding **claim 1**, Kliger discloses a method of transmitting data within a

network including one or more of a first type of device **(e.g. cable TV – in Figure 1,**

item 33 in the 4th room) operating according to a first protocol **(See Figures 1 and 3 –**

COAX MAC can be a first protocol) and a second protocol and one or more of a

second type of device **(e.g. PC, DVD, printers etc...)** operating according to only the

second protocol **(See Figures 1 and 3 – any of the protocols listed - IEEE 1394,**

ETHERNET, USB, IEEE 1394 can be a second protocol) comprising: a. establishing a

periodic cycle including a first portion and a second portion **(See Paragraphs 84 and 85**

– Kliger's system supports cyclic transmission on isochronous and synchronous

basis like the Applicant's invention as further illustrated in Paragraph 84 item 3

and Paragraph 18.) ; b. allowing only transmissions according to the first protocol

during the first portion **(See Paragraph 18 – Kliger discloses Isochronous bursts**

start at the start of every transmission cycle. Every protocol shown in Figure 3

when it only supports Isochronous traffic can easily meet this limitation.); and c.

allowing only transmissions according to the second protocol during the second

portion**(See Paragraph 18 – Kliger discloses Isochronous bursts start at the start**

of every transmission cycle. Every protocol shown in Figure 3 when it only

supports Asynchronous traffic can easily meet this limitation. For instance, it

would make sense for Ethernet protocol to support Asynchronous traffic, as the

protocol is too slow to support Isynchronous protocol, which is also confirmed

by the Applicant. See also Paragraphs 66 and 85-88 and also Figure 7B).

7.   Regarding **claim 4**, Kliger discloses a method wherein duration of the first portion

is dependent on a number of active streams **(Kliger shows the first CBR or**

isochronous portion is dependent on the number of active HNMs participating

during the CBR period as illustrated in the last two sentences of paragraph 103)

of the first protocol within the network.

8.   Regarding **claim 5**, Kliger discloses a method further comprising establishing an

active stream of the first protocol **(CBR period – see last two sentences of paragraph**

103) within the network and guaranteeing first protocol bandwidth to the active stream.

(See Paragraph 103)

7.   Regarding **claim 7**, Kliger discloses a method wherein the first protocol is

isochronous **(See Figure 3 – COAX MAC protocol i.e. CBR – see also paragraph**

103) capable and the second protocol is asynchronous (See Figures 1 and 3 – any of the protocols listed - IEEE 1394, ETHERNET, USB, IEEE 1394 can be a second protocol with asynchronous transmission mode).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   **Claims 2, 3, and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger et al (US Pub. No. 2002/0069417), hereinafter referred to as Kliger, in view of Lo et al (US 6, 324, 178), hereinafter referred to as Lo.

11.   Regarding **claim 2**, Kliger discloses all aspects of the claimed invention as set forth in the rejection of claim 1 but fails to teach a method wherein devices of the first type and devices of the second type communicate with each other within the network.

Lo discloses a method of efficient data transfers between domains of differing data formats.

Lo discloses a method wherein devices of the first type **(i.e. IEEE 1394 device)** and devices of the second type **(i.e. Ethernet device)** communicate with each other within the network. **(Lo shows how a bridge circuit in Figure 2A allows communication between devices belonging to Domain "A" and Domain "B". He**

further shows the domains can be IEEE 1394 and Ethernet in Figure 4. See also

Column 4, Lines 46-66; Column 5, Lines 15-20; and Column 7, Lines 28-35)

12.	Regarding **claim 3**, Kliger discloses all aspects of the claimed invention as set

forth in the rejection of claims 1 and 2 but fails to teach a method further comprising

converting the transmissions into a format understood by a receiving device.

Lo discloses a method further comprising converting the transmissions into a

format understood by a receiving device. **(See Column 7, Lines 15-20 and Figure 3B)**

13.	Regarding **claim 6**, Kliger discloses all aspects of the claimed invention as set

forth in the rejection of claim 1 but fails to teach a method wherein the first type of

device operates according to IEEE 1394 protocol and the second type of device

operates according to Ethernet protocol.

Lo discloses a method wherein the first type of device operates according to

IEEE 1394 protocol and the second type of device operates according to Ethernet

protocol. **(Lo clearly shows the bridge circuit connecting device based on IEEE**

1394 to a device based on Ethernet protocol in Figure 4. See also Column 7, Lines

40-53)

14.	With respect to *claims 2, 3, and 6*, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify Kliger's method to

incorporate communication between two devices operating under two different protocols

and where the two different protocols are IEEE 1394 and Ethernet. The motivation

being Kliger discusses in Paragraph 5 that the goal of his invention is to provide

interconnectivity between different devices in the home network but fails to achieve this

goal with respect to devices based on different protocols as stated in paragraph 45.

Further additional motivation can be found in Paragraph 48 where devices of the same

protocol can be connected to local buses with different protocols but fails to show how it

is done. Lo shows how communication between two devices operating with two

different protocols can be connected in Figure 4. Lo further shows in Column 1, Lines

16-25 that in networked communication system the popular domains to be bridged are

based on Ethernet and IEEE 1394 protocols.

15.   **Claims 8, 9, and 11-18**, as best understood under the above 112 2nd paragraph

rejection, are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks et al

(US 6, 747, 979), hereinafter referred to as Banks, in view of Thaler et al (US 6, 772,

267), hereinafter referred to as Thaler, and Hewitt (US 6, 032, 211).

   Banks discloses a network layer bridge.

16.   Regarding **claim 8**, Banks discloses a modified hub device configured for

coupling between two or more devices operating according to two or more different

protocols **(See Column 10, Lines 35-45 – the network layer bridge is effectively a**

hub connecting devices in a LAN setting), the hub device **(Figure 5A, element 51)**

comprising: a. a first interface configured for coupling to and communicating with one or

more of a first type of device operating according to a first protocol and a second

protocol **(Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10,**

Line 44. As defined by the Standards Bodies and also confirmed by the Applicant

– IEEE 1394 supports asynchronous and isochronous traffic. Clearly the

Applicant is referring to the support for two different traffic types as constituting

two different protocols); b. a second interface configured for coupling to and

communicating with one or more of a second type of device operating according to only

the second protocol **(Figure 5A, element 52 is 802.3 LAN as illustrated in Column**

10, Line 43).

Banks discloses bridges communicating with a router, which is a layer 3 switch,

via a LAN segment as shown in Figure 6. Banks, however, fails to expressly disclose a

bridge (i.e. hub) that is directly connected to and communicating with a switch device.

Thaler teaches a multi-port bridge that provides full network connectivity between

IEEE 1394-based networks and other types of networks.

Thaler discloses a bridge **(Figure 1, elements 100 an 112)** with an interface

configured for coupling to and communicating with the switching device **(Figure 1,**

element 104. See also Column 3, Lines 20-43).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Bank's' bridge to incorporate an interface configured for

coupling to and communicating with the switching device. The motivation being Banks

discloses in Column 5, Lines 58-67 and Column 14, Lines 25-67 that his bridge can

interconnect nodes through other network connection components such as a router (i.e.

Layer 3 switch) but fails to show how the connection between his network layer bridge

and a switch is accomplished. Thaler shows in Figure 1 that there is an interface

connecting the bridge to the switch.

Banks fails to disclose a transmission scheme where periodic signals are sent to

signal the start of a period having a first portion and a second portion, wherein only

communications in the first protocol are allowed during the first portion and only

communications in the second protocol are allowed during the second portion.

Hewitt teaches a method of prioritizing asynchronous and isochronous transfer

over a bus connecting a first device and a second device.

Hewitt discloses a transmission scheme where periodic signals are sent to signal

the start of a period having a first portion and a second portion, wherein only

communications in the first protocol are allowed during the first portion and only

communications in the second protocol are allowed during the second portion. **(Hewitt**

shows in Figure 4 a first portion of transmission where only Asynchronous traffic

is handled and a second portion of transmission where only isochronous traffic

is transmitted. See also Column 5, Lines 3-35. Hewitt further shows the various

transmission cycles in Table 1 and the periodic signals sent to start the different

cycles are shown in Table 2.)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Bank's' bridge to incorporate a transmission scheme to

handle asynchronous and isochronous traffic. The motivation being Banks discloses a

bridge that can interconnect an Ethernet LAN to an IEEE 1394 LAN and it is well known

that IEEE 1394 handles both Isochronous and Asynchronous traffic but fails to

adequately disclose how these different types of traffics are handled and merely

mentions asynchronous transactions in Column 10, Line 51. Hewitt in Figure 4 shows

how Asynchronous and Isochronous traffics are handled in IEEE 1394 setting.

17.   Regarding **claim 9**, Banks discloses a modified hub device **(Figure 5A, element 51)** wherein devices of the first type **(Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 444)** and devices of the second type **(Figure 5A, element 52 is 802.3 LAN as illustrated in Column 10, Line 43)** communicate with each other **(See Column 1, Lines 20-25 and Figure 5B)**.

18.   Regarding **claim 11**, Banks fails to disclose a modified hub device wherein duration of the first portion is dependent on a number of active streams of the first protocol.

Hewitt discloses a modified hub device wherein duration of the first portion is dependent on a number of active streams of the first protocol. **(See Figure 4 and Column 5, Lines 3-35. Basically the first portion is Asynchronous traffic transmission and second portion is Isochronous traffic transmission.)**

19.   Regarding **claim 12**, Banks discloses a modified hub device wherein the modified hub device communicates with the switching device **(i.e. layer 3 router – see Figure 6 and also Column 14, Lines 24-35)**

Banks fails to disclose a transmission scheme that establishes an active stream involving a device of the first type coupled to the hub device and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is established.

Hewitt discloses a transmission scheme that establishes an active stream involving a device of the first type coupled to the hub device and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is

established. **(See Figure 4, step 407 and Column 5, Lines 3-35. Hewitt shows**

Isochronous streams are created when the bandwidth can be guaranteed.)

20.   Regarding **claim 13,** Banks discloses a modified hub device wherein the

modified hub device communicates with the switching device **(i.e. layer 3 router – see**

Figure 6 and also Column 14, Lines 24-35)

Banks fails to disclose a transmission scheme to establish an active stream

involving a device of the first type coupled to the hub device and to assign a label

corresponding to the active stream.

Hewitt discloses a transmission scheme that establishes an active stream

involving a device of the first type coupled to the hub device and further wherein

appropriate bandwidth for the active stream is guaranteed when the active stream is

established. **(See Figure 4, step 407 and Column 5, Lines 3-35. Hewitt shows**

Isochronous streams are created when the bandwidth can be guaranteed. It is

inherent for the system to mark the newly created streams with some form of

identification or label)

21.   With respect to **claims 11-13,** it would have been obvious to one having ordinary

skill in the art at the time the invention was made to modify Bank's' bridge to incorporate

a transmission scheme to handle asynchronous and isochronous traffic. The motivation

being Banks discloses a bridge that can interconnect an Ethernet LAN to an IEEE 1394

LAN and it is well known that IEEE 1394 handles both Isochronous and Asynchronous

traffic but fails to adequately disclose how these different types of traffics are handled

and merely mentions asynchronous transactions in Column 10, Line 51. Hewitt in

Figure 4 shows how Asynchronous and Isochronous traffics are handled in IEEE 1394

setting.

22.   Regarding **claim16**, Banks fails to disclose a modified hub device wherein

communications from the first type of device in the second protocol are prioritized during

the second portion over communications from the second type of device in the second

protocol.

Hewitt discloses a transmission scheme involving communications from the first

type of device in the second protocol are prioritized during the second portion over

communications from the second type of device in the second protocol. **(The second**

protocol is IEEE 1394 and the devices operating under this protocol support

different traffic types and definitely prioritization meeting this limitation is shown

in Figure 4 in steps 407 and 411. See also Column 5, Lines 3-35)

23.   Regarding **claim 17**, Banks fails to disclose a modified hub device wherein

communications from the second type of device in the second protocol are prioritized

during the second portion over communications from the first type of device in the

second protocol.

Hewitt discloses a transmission scheme involving communications from the

second type of device in the second protocol are prioritized during the second portion

over communications from the first type of device in the second protocol. **(The second**

protocol is IEEE 1394 and the devices operating under this protocol support

different traffic types and definitely prioritization meeting this limitation is shown

in Figure 4 in steps 407 and 411. See also Column 5, Lines 3-35)

24.   With respect to *claims 16 and 17*, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify Bank's' bridge to

incorporate a transmission scheme to handle asynchronous and isochronous traffic in

terms of defining priority of transmission. The motivation being Banks discloses a

bridge that can interconnect an Ethernet LAN to an IEEE 1394 LAN and it is well known

that IEEE 1394 handles both Isochronous and Asynchronous traffic but fails to

adequately disclose how these different types of traffics are handled and merely

mentions asynchronous transactions in Column 10, Line 51. Hewitt in Figure 4 shows

how Asynchronous and Isochronous traffics are handled in IEEE 1394 setting. Hewitt

further shows in Column 5, Lines 35-46 the reasoning behind the different prioritization

schemes implemented in his system.

25.   Regarding **claim 14**, Banks discloses a modified hub device wherein the first

type of device operates according to IEEE 1394 protocol and the second type of device

operates according to Ethernet protocol. **(Figure 5A, element 53 is an IEEE 1394 LAN**

as illustrated in Column 10, Line 44. Figure 5A, element 52 is 802.3 LAN as

illustrated in Column 10, Line 43).

26.   Regarding **claim 15**, Banks discloses a modified hub device wherein the first

protocol is isochronous and the second protocol is asynchronous. **(Since Banks device**

supports IEEE 1394 protocol support for Asynchronous and Isochronous traffic

based on IEEE standards is inherent.)

27.   Regarding **claim 18**, Banks fails to disclose a modified hub device wherein the

switching device is configured for coupling to a remote network of devices thereby

providing a wide area network.

Thaler discloses a modified hub **(Figure 1, elements 100, and 112)** device

wherein the switching device is configured for coupling to a remote network of devices

thereby providing a wide area network **(Figure 1, element 108).**

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Bank's' bridge to incorporate an interface configured for

coupling to and communicating with a switching device configured for coupling to a

remote network of devices. The motivation being Banks discloses in Column 5, Lines

58-67 and Column 14, Lines 25-67 that his bridge can interconnect nodes through other

network connection components such as a router (i.e. Layer 3 switch) but fails to show

how the connection between his network layer bridge and a switch configured for

coupling to a remote network of devices is accomplished. Thaler shows in Figure 1 that

there is an interface connecting the bridge to the switch and the switch is configured to

be connected to a WAN.

26.   **Claim 10**, as best understood under the above 112 2nd paragraph rejection, is

rejected under 35 U.S.C. 103(a) as being unpatentable over Banks in view of Thaler

and Hewitt as applied to claim 8 above, and further in view of Lo et al (US 6, 324, 178),

hereinafter referred to as Lo.

The combination of Banks, Thaler and Hewitt teaches all aspects of the claimed

invention as set forth in the rejection of claim 8 but does not disclose a modified hub

device further comprising a conversion circuit coupled to the first interface, the second

interface and the third interface for converting transmissions into a format understood by

a receiving device.

Lo discloses a modified hub device further comprising a conversion circuit **(See**

Figure 4, elements 420 and 440) coupled to the first interface, the second interface

and the third interface for converting transmissions into a format understood by a

receiving device **(See Figures 3A and 3B).**

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the combination of Bank's, Thaler's and Hewitt's

apparatus to incorporate a conversion circuit to format packets in a manner understood

by receiving device. The motivation is that Bank's discloses to facilitate communication

between two devices operating under different protocols a packet fragmentation and

reassembly may be required at the data link layer does not show the means and how

and what is fragmented and what is assembled. Lo provides the solution in Figures 3A,

3B, and 4.

27.   **Claims 19-28 and 29, 30, 32-39**, as best understood under the above 112 2nd

paragraph rejection, are rejected under 35 U.S.C. 103(a) as being unpatentable over

Szczepanek et al (US 6, 690, 668), hereinafter referred to as Szczepanek, in view of

Banks et al (US 6, 747, 979), hereinafter referred to as Banks, and Hewitt (US 6, 032,

211).

Szczepanek discloses a networking switching system for use in an Ethernet

network.

28.   Regarding **claims 19 and 29**, Szczepanek discloses a switching device **(See**

Figure 2) configured for coupling to two or more hub devices **(See element H in Figure**

2). Szczepanek further discloses the switching device comprising: a plurality of ports

(Figure 2, Po...Pn), each port coupled to a corresponding hub device for interfacing

with devices coupled to the corresponding hub device **(See element H in Figure 2)**;

and b. a control circuit coupled to the plurality of ports **(See Figures 3&9, elements 20)**.

        Szczepanek fails to disclose hub devices providing interfaces to one or more of a

first type of device operating according to a first protocol and a second protocol and

one or more of a second type of device operating according to only the second

protocol.

        Banks discloses hub devices **(Figure 5A, element 51)** providing interfaces to

one or more of a first type of device operating according to a first protocol **(Figure 5A,**

element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. As defined

by the Standards Bodies and also confirmed by the Applicant – IEEE 1394

supports asynchronous and isochronous traffic. Clearly the Applicant is referring

to the support for two different traffic types as constituting two different

protocols); and a second protocol and one or more of a second type of device

operating according to only the second protocol **(Figure 5A, element 52 is 802.3 LAN**

as illustrated in Column 10, Line 43. See Column 10, Lines 35-45 – the network

layer bridge is effectively a hub connecting devices in a LAN setting)

        It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Szczepanek's switching device by incorporating Bank's'

bridge. The motivation being Szczepanek discloses in Column 1, Lines 42-50 the need

for high bandwidth communication to support the exchange various high volume data

with different formats as 3-D images and video but does not indicate how it can be

accomplished. Banks discloses a network layer bridge that acts as a hub for

interconnecting 1394 LAN to Ethernet LAN and facilitates multimedia data exchange in

different formats.

Szczepanek fails to disclose a transmission scheme where periodic signals are

sent to signal the start of a period having a first portion and a second portion, wherein

only communications in the first protocol are allowed during the first portion and only

communications in the second protocol are allowed during the second portion.

Hewitt discloses a transmission scheme where periodic signals are sent to signal

the start of a period having a first portion and a second portion, wherein only

communications in the first protocol are allowed during the first portion and only

communications in the second protocol are allowed during the second portion. **(Hewitt**

shows in Figure 4 a first portion of transmission where only Asynchronous traffic

is handled and a second portion of transmission where only isochronous traffic

is transmitted. See also Column 5, Lines 3-35. Hewitt further shows the various

transmission cycles in Table 1 and the periodic signals sent to start the different

cycles are shown in Table 2.)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Szczepanek's switching device to incorporate a

transmission scheme to handle asynchronous and isochronous traffic. The motivation

being Szczepanek discloses his switch will support 3D-Image and video in Column 1,

Lines 42-50 and given this disclosure his switch has to deal with asynchronous and

isochronous traffic but fails to adequately disclose how these different types of traffics

are handled and merely mentions asynchronous transactions in Column 10, Line 51.

Hewitt in Figure 4 shows how Asynchronous and Isochronous traffics are handled in

IEEE 1394 setting.

29.   Regarding **claims 20 and 30**, Szczepanek discloses a switching device.

Szczepanek, however, fails to disclose wherein devices of the first type and devices of

the second type communicate with each other.

Banks discloses devices of the first type and devices of the second type

communicate with each other. **(Banks discloses a modified hub device (Figure 5A,**

element 51) wherein devices of the first type (Figure 5A, element 53 is an IEEE

1394 LAN as illustrated in Column 10, Line 444) and devices of the second type

(Figure 5A, element 52 is 802.3 LAN as illustrated in Column 10, Line 43)

communicate with each other (See Column 1, Lines 20-25 and Figure 5B).)

30.   Regarding **claims 24 and 35**, Szczepanek discloses a switching device.

Szczepanek, however, fails to disclose wherein the first type of device operates

according to IEEE 1394 protocol and the second type of device operates according to

Ethernet protocol.

Banks discloses the first type of device operates according to IEEE 1394 protocol

and the second type of device operates according to Ethernet protocol. **(Figure 5A,**

element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. Figure 5A,

element 52 is 802.3 LAN as illustrated in Column 10, Line 43).

31.   Regarding **claims 25 and 36**, Szczepanek discloses a switching device.

Szczepanek, however, fails to disclose wherein the first protocol is isochronous capable

and the second protocol is asynchronous.

Banks discloses the first protocol is isochronous capable and the second protocol

is asynchronous. **(Since Banks device supports IEEE 1394 protocol support for**

Asynchronous and Isochronous traffic based on IEEE standards is inherent.)

32.   With respect to *claims 20, 24, 25, 30, 35 and 36*, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to modify

Szczepanek's switching device by incorporating Bank's' bridge with a capability to

bridge 1394 LAN to Ethernet LAN. The motivation being Szczepanek discloses in

Column 1, Lines 42-50 the need for high bandwidth communication to support the

exchange various high volume data with different formats as 3-D images and video but

does not indicate how it can be accomplished.   Banks discloses a network layer bridge

that acts as a hub for interconnecting 1394 LAN to Ethernet LAN and facilitates

multimedia data exchange in different formats. In particular, from the standard bodies it

is well known that IEEE 1394 supports isochronous traffic to facilitate multimedia

transmission.

33.   Regarding **claims 21 and 32**, Szczepanek discloses a switching device.

Szczepanek fails to disclose wherein duration of the first portion is dependent on a

number of active streams of the first protocol.

Hewitt discloses duration of the first portion is dependent on a number of active streams of the first protocol. **(See Figure 4 and Column 5, Lines 3-35. Basically the first portion is Asynchronous traffic transmission and second portion Isochronous traffic transmission.)**

34.   Regarding **claims 22 and 33**, Szczepanek discloses a switching device that communicates with the hub devices. **(See Column 4, Lines 54-67)** Szczepanek fails to disclose a transmission scheme that establishes an active stream involving a device of the first type coupled to the hub device and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is established.

Hewitt discloses a transmission scheme that establishes an active stream involving a device of the first type coupled to the hub device and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is established. **(See Figure 4, step 407 and Column 5, Lines 3-35. Hewitt shows Isochronous streams are created when the bandwidth can be guaranteed.)**

35.   Regarding **claims 23 and 34**, Szczepanek discloses a switching device that communicates with the hub devices. **(See Column 4, Lines 54-67)**. Szczepanek fails to disclose a transmission scheme that establishes an active stream involving a device of the first type coupled to the hub device and to assign a label corresponding to the active stream.

Hewitt discloses a transmission scheme that establishes an active stream involving a device of the first type coupled to the hub device and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is

established. **(See Figure 4, step 407 and Column 5, Lines 3-35. Hewitt shows**

Isochronous streams are created when the bandwidth can be guaranteed. It is

inherent for the system to mark the newly created streams with some form of

identification or label)

36.   With respect to **claims 21-23 and 32-34**, it would have been obvious to one

having ordinary skill in the art at the time the invention was made to modify

Szczepanek's switching device by incorporate a transmission scheme to handle

asynchronous and isochronous traffic. The motivation being Szczepanek discloses his

switch will support 3D-Image and video in Column 1, Lines 42-50 and given this

disclosure his switch has to deal with asynchronous and isochronous traffic but fails to

adequately disclose how these different types of traffics are handled. Hewitt in Figure 4

shows how Asynchronous and Isochronous traffics are handled in IEEE 1394 setting.

37.   Regarding **claims 26 and 37**, Szczepanek discloses a switching device.

Szczepanek fails to disclose wherein communications from the first type of device in the

second protocol are prioritized during the second portion over communications from the

second type of device in the second protocol.

Hewitt discloses a transmission scheme involving communications from the first

type of device in the second protocol are prioritized during the second portion over

communications from the second type of device in the second protocol. **(The second**

protocol is IEEE 1394 and the devices operating under this protocol support

different traffic types and definitely prioritization meeting this limitation is shown

in Figure 4 in steps 407 and 411. See also Column 5, Lines 3-35)

38.   Regarding **claims 27 and 38**, Szczepanek discloses a switching device wherein

communications from the second type of device in the second protocol are prioritized

during the second portion over communications from the first type of device in the

second protocol.

Hewitt discloses a transmission scheme involving communications from the

second type of device in the second protocol are prioritized during the second portion

over communications from the first type of device in the second protocol. **(The second**

protocol is IEEE 1394 and the devices operating under this protocol support

different traffic types and definitely prioritization meeting this limitation is shown

in Figure 4 in steps 407 and 411. See also Column 5, Lines 3-35)

39.   With respect to *claims 26, 27, 37 and 38*, it would have been obvious to one

having ordinary skill in the art at the time the invention was made to modify

Szczepanek's switching device to incorporate a transmission scheme to handle

asynchronous and isochronous traffic in terms of defining priority of transmission. The

motivation being Szczepanek discloses his switch will support 3D-Image and video in

Column 1, Lines 42-50 and given this disclosure his switch has to deal with

asynchronous and isochronous traffic but fails to adequately disclose how these

different types of traffics are handled. Hewitt in Figure 4 shows how Asynchronous and

Isochronous traffics are handled in IEEE 1394 setting. Hewitt further shows in Column

5, Lines 35-46 the reasoning behind the different prioritization schemes implemented in

his system.

40.   Regarding **Claims 28 and 39**, Szczepanek discloses a switching device further

comprising a remote interface circuit configured for coupling to a remote network of

devices thereby providing a wide area network. **(See Column 1, Lines 30-35 this**

inherent to Szczepanek system, as conventional LANs are capable meeting such

a limitation.

41.   **Claim 31**, as best understood under the above 112 2nd paragraph rejection, is

rejected under 35 U.S.C. 103(a) as being unpatentable over Szczepanek in view of

Banks and Hewitt as applied to claim 29 above, and further in view of Lo et al (US 6,

324, 178), hereinafter referred to as Lo.

The combination of Szczepanek, Banks, and Hewitt teaches all aspects of the

claimed invention as set forth in the rejection of claim 29 but does not disclose a

modified hub device further comprising a conversion circuit coupled to the first interface,

the second interface and the third interface for converting transmissions into a format

understood by a receiving device.

Lo discloses a modified hub device further comprising a conversion circuit **(See**

Figure 4, elements 420 and 440) coupled to the first interface, the second interface

and the third interface for converting transmissions into a format understood by a

receiving device **(See Figures 3A and 3B).**

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the combination of Banks', Szczepanek's, and Hewitt's

apparatus to incorporate a conversion circuit to format packets in a manner understood

by receiving device. The motivation is that Banks' discloses to facilitate communication

between two devices operating under different protocols a packet fragmentation and

reassembly may be required at the data link layer does not show the means and how

and what is fragmented and what is assembled. Lo provides the solution in Figures 3A,

3B, and 4.

Conclusion

42.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The following US Patent is cited to show the state of the art with IEEE

1394/Ethernet Protocol conversion:

US Patent (6, 813, 651) to Smith et al

The following US Patents are cited to show the state of the art with respect to

ISOCHRONOU/ASYNCHRONUS transmission schemes:

US Patent (6, 339, 584) to Gross et al

US Patent (6, 381, 647) to Darnell et al

US Patent (6, 011, 784) to Brown et al

The following US Patent is cited to show the state of the art with Ethernet

Switching technology:

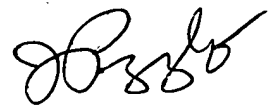US Patent (6, 577, 631) to Keenan et al

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Habte Mered whose telephone number is 571 272 6046.

The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM
02-22-2006

JOHN PEZZLO
PRIMARY EXAMINER